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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Liwen Xu, et al.

Serial No.: 10/605,930 Group Art Unit: 3661

Filed: November 6, 2003 Examiner: Nguyen, Tan Quang

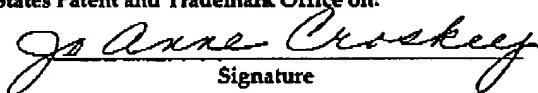
Title: ROLL STABILITY CONTROL SYSTEM FOR AN AUTOMOTIVE VEHICLE USING AN EXTERNAL ENVIRONMENTAL SENSING SYSTEM

Atty. Docket No.: 81044242

I hereby certify that this correspondence is being transmitted via facsimile (571-273-8300) to Examiner Tan Quang Nguyen with the United States Patent and Trademark Office on:

August 11, 2006
Date of Deposit

Jo Anne Croskey


Signature

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Mail Stop AF
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

The Applicants, respectfully, request a Pre-Appeal Brief Request for Review in view of improper rejections based upon error(s) in fact and based upon essential element(s) required to establish a *prima facie* rejection. This Request is submitted along with a Notice of Appeal.

In the Final Office Action dated June 15, 2006, claims 1-160 are pending. Claims 36-160 stand withdrawn. Claims 1-35 stand rejected. Of the rejected claims, claims 1 and 21 are independent claims from which claims 2-20 and 22-25 depend therefrom.

Rejection of claims 1-10, 14-16, 21-29, and 33-35
under 35 U.S.C. 103(a)

The Final Office Action states that claims 1-10, 14-16, 21-29, and 33-35 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Bauer (U.S. Pat. No. 6,757,595) in view of Suzuki et al. (U.S. Pat. No. 6,535,114).

Claim 1 recites a control system for an automotive vehicle that includes a camera-based vision system, which generates image signals. The control system also includes a rollover control system and a controller that is coupled to the camera system and the rollover control system. The controller generates a dynamic vehicle characteristic signal in response to the image signals. The controller controls the rollover control system in response to the dynamic vehicle control signal.

The Office Actions state that Bauer suggests that a roll parameter is typically estimated from available sensors. The Office Actions also state, however, that Bauer fails to disclose a camera-based vision system for generating a roll angle. Applicants submit that up until the present invention disclosed in the present application and recited in claims 1-10, 14-16, 21-29, and 33-35, the sensors utilized to determine a roll parameter have not been or included cameras. Prior to the present invention non-vision based angular rate sensors or acceleration sensors, such as gyro sensors, have been used to detect global attitude. The sensors have been directed to the status of the vehicle without relevance to the vehicle surroundings. The present invention uses camera sensors to allow for the detection of a true or relative angular position. Applicants are aware that claims 1 and 21 do not explicitly state that relative angular position is detected, but the recited use of a camera and the generation of an image signal for rollover control allow for such detection. Note that this is recited in dependent claims 12, 13, and 32 in recited the limitation of generating a body-to-road angle signal. The relative angular position allows for improved accuracy for roll stability control.

The mere statement, "that available sensors may be used", as recited in Bauer, does not infer the use of cameras as provided by the present invention.

The true angular position was not determined previously and could not be determined using typical sensors. The angular position was only previously estimated. See the Background section of the present application for which a more thorough explanation is provided.

The Examiner provides the Suzuki reference to suggest that the use of cameras would have been obvious. Applicants, respectfully, traverse. Although Suzuki discloses the use of a camera, the camera is used for object detection. In Suzuki typical sensors are used to detect roll, yaw, and pitch of the vehicle on which the camera is mounted. The system of Suzuki tracks the object using the image received from the camera in response to the roll, yaw, and pitch information. The system of Suzuki provides improved object tracking by taking into account the motion of the vehicle and thus the motion of the camera. The camera is not used to detect, generate, or determine a roll parameter. There is no suggestion in Suzuki for the use of a camera to detect a roll parameter or for that matter any vehicle characteristic. Suzuki is directed solely to object detecting and tracking.

The Office Action states that Suzuki suggests a system and method for optically monitoring the environment of a moving vehicle, which includes a camera for generating a roll parameter for use in controlling the engine, brake, transmission, steering, etc. Applicants submit that the roll parameter is not generated in response to the signal received from the camera, but rather from other sensors. The roll parameter is used in understanding the information received from the camera. Also, the roll parameter generated is not used to prevent or mitigate vehicle body roll motion, but rather is used to provide better object tracking to avoid obstacles.

As such, Suzuki is unrelated and is nonanalogous art. Referring to MPEP 2141.01(a), while the Patent Office classification of references and cross-references in the official search notes are some evidence of "nonanalogy" or "analogy" respectively, the court has found "the similarities and differences in structure and function of the inventions to carry far greater weight." *In re Ellis*, 476 F.2d 1370, 1372, 177USPQ526, 527 (CCPA 1973). Applicants are

unsure of the classification of the present invention, but note that the classifications of Suzuki are different than that of Bauer, which at least suggests that Suzuki is nonanalogous. Applicants submit that the structure, function, and purpose of the system of Suzuki are clearly different than that of the present invention. Suzuki discloses an object tracking system, as opposed to a rollover stability control system. Suzuki would not have logically commanded itself to the inventor's attention in considering the problems solved by the system and method claimed. In developing a rollover stability control system, one would clearly not look to a technique for improved object tracking. Thus, the Applicant submits that Suzuki is nonanalogous art and to use such a reference is far reaching at best.

Thus, for the above-stated reasons alone, it would not have been obvious to combine and modify Suzuki with Bauer to arrive at the present invention. Also, there is no motivation or suggestion in either of the references for the combination thereof and the modifications needed to arrive at the present invention.

Furthermore, Applicants submit that neither of the references alone or in combination disclose a controller that generates a dynamic vehicle characteristic signal in response to camera image signals and controlling the rollover control system in response to the dynamic vehicle characteristic signal. Not only is the novel use of a camera-based system not disclosed by the relied upon art, Bauer only describes a typical system that limits a rollover *propensity* in an automotive vehicle. More importantly, Bauer does not disclose or suggest a system controlling the vehicle during a rollover situation or a rollover controller, as recited in claims 1 and 21. Bauer merely suggests that the tendency to rollover will be reduced through the operation of its system and method. The Office Action states that the "system and method for reducing rollover is equivalent to the rollover controller since it controls the rollover". A rollover is not controlled in Bauer; Bauer simply minimizes body roll motion or oscillations prior to a rollover or a rollover event.

In the Previous Response of April 13, 2006, the Applicants submitted that Bauer does not address any sort of remote sensors for use in its stability control system. The Examiner has responded by stating that remote sensors are not claimed. Applicants in stating the term "remote sensors" were referring to the cameras, which are used to monitor an area external or remote from a host vehicle or, for example, the road in front of a host vehicle.

Referring to MPEP 706.02(j) and 2143, to establish a *prima facie* case of obviousness the prior art reference(s) must teach or suggest all the claim limitations, see *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). Therefore, since each and every limitation of claims 1 and 21 are not taught or suggested by the relied upon references, claims 1 and 21 are novel, nonobvious, and are in a condition for allowance. Since claims 2-10, 14-16, 22-29, and 33-35 depend from claims 1 and 21, respectively, they are also believed to be novel, nonobvious, and are in a condition for allowance.

Rejection of claims 11-13 and 30-32 under 35 U.S.C. 103(a)

Claims 11-13 and 30-32 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Bauer and Suzuki and further in view of Griessbach (U.S. Pat. No. 6,169,946).

Applicants submit that since claims 11-13 and 30-32 depend from claims 1 and 21, that they are also novel, nonobvious, and are in a condition for allowance for at least the same reasons.

The Office Action states that Bauer and Suzuki fail to disclose a wheel lift signal. Applicants agree and submit that Bauer and Suzuki also fail to disclose a body-to-road angle signal, and the entering of a wheel lift determination when a body-to-road angle signal is above a predetermined amount; of course, this is in addition to the other non-disclosed elements recited above. The Office Action states that Griessbach discloses a wheel lift signal and is silent with regards to the claimed limitation of a body-to-road angle and to a determination based thereon.

Griessbach is directed to accident protection via a triggering device, such as a rollbar. Griessbach is not directed to roll stability control. In

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Griessbach transverse acceleration and tilt of a vehicle are monitored, and based thereon the rollbar is actuated. Although, Griessbach monitors roll angle, that does not suggest that wheel lift is monitored. Wheel lift is different than roll angle. Roll angle may change while wheel lift remains constant and vice versa. Thus, not only does Griessbach fail to disclose the additional limitations of claims 11-13 and 31-32, Applicants submit that Griessbach is also nonanalogous art. Clearly a rollbar triggering system is substantially different than a rollover stability control system. A rollbar triggering system is utilized to deploy or actuate a rollbar for occupant protection. A rollover stability control system is utilized to prevent a vehicle from rolling over.

Also, there is no motivation in Bauer, Suzuki, or Griessbach for the combination and the needed modification thereof to arrive at the present invention. Thus, claims 11-13 and 31-32 are further novel and nonobvious for the above-stated reasons.

Rejection of claims 17-19 under 35 U.S.C. 103(a)

Claims 17-19 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Bauer and Suzuki and further in view of Ishikawa (U.S. Pat. No. 6,292,111).

Applicants submit that since claims 17-19 depend from claim 1, that they are also novel, nonobvious, and are in a condition for allowance for at least the same reasons.

The Office Action states that Ishikawa discloses the recited limitation of claims 17-19, for which such disclosure is lacking in Bauer and Suzuki. Applicants submit that regardless of whether Ishikawa discloses the use of multiple cameras, Ishikawa is also nonanalogous art. Nonanalogous is inferred by the different classification of Ishikawa and is supported by the difference in structure and function with respect to the present invention. Ishikawa is directed to a vehicle exterior monitoring system. Ishikawa uses cameras to detect objects and target vehicles, and in response thereto, alarms a driver of such objects. Ishikawa is not directed to rollover stability. The

system, method, and controller of Ishikawa are different than that claimed and the camera use is different than the camera use claimed.

Thus, claim 20 is further novel and nonobvious for the above-stated reasons.

Rejection of claim 20 under 35 U.S.C. 103(a)

Claim 20 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Bauer and Suzuki and further in view of Nishikawa (U.S. Pat. No. 5,913,375).

Applicants submit that since claim 20 depends from claim 1, that it is also novel, nonobvious, and is in a condition for allowance for at least the same reasons.

The Office Action states that Nishikawa discloses the recited limitation of claim 20, for which such disclosure is lacking in Bauer and Suzuki. Applicants submit that regardless of whether Nishikawa discloses the use of a camera and a radar system, Nishikawa is also nonanalogous art. Nonanalogous is inferred by the different classification of Nishikawa and is supported by the difference in structure and function with respect to the present invention. Nishikawa is directed to a steering correction system. Nishikawa uses CCD sensors to monitor the condition of the road ahead of a vehicle and performs steering corrections in response thereof. Nishikawa is not directed to rollover stability. The system, method, and controller of Nishikawa are different than that claimed and the CCD sensor use is different than the camera use claimed.

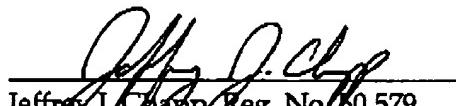
Thus, claim 20 is further novel and nonobvious for the above-stated reasons.

Therefore, Applicants respectfully request the panel to reverse the Examiner's position with respect to each and every one of the pending claims based upon the errors in fact and the essential elements missing to establish a *prima facie* case of obviousness described above. The application is in condition for allowance and expeditious notice thereof is earnestly solicited. Should the Panel Examiners have any questions or comments, they are respectfully requested to contact the undersigned attorney.

The Commissioner is hereby authorized to charge any additional fees, which may be required, or credit any overpayment to Deposit Account No. 06-1510.

Respectfully submitted,

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